



ACHIM SZEPANSKI 2023-12-31

TECHNOLOGY AND MARXISM

MASHINES ALGORITHM, CAPITAL, COMMUNISM, MACHINES, MARXISM,
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Most Marxist discourses understand both technology, the logical discourse on the teleology of complete mastery of nature, which proves to be the decisive orientation for the Western natural sciences, and the technical object, the practical object of the theoretical sciences, as part of the forces of production and not of the relations of production. However, it cannot be ruled out that in capitalism the relations of production themselves can mutate into productive forces, as Adorno already pointed out.⁹⁶

It was Hans-Dieter Bahr who, following the 1968 student movement, pointed out that certain philosophical myths persist in the Marxist technology debates: it was the peculiarity of the Promethean myth and each of its previous updates – to which most schools of Marxism also

belong – to have grasped technology purely as a productive force and at the same time to have bound technical innovation into a linear and order-emphasizing discourse of progress in order to present technology itself as explosive. This can also be seen in the ultra-modernity of Leninism and his late Fordist biopolitics, with which he wanted to set in motion a communist-utopian-technicist production of humanity on a bio-cosmic scale – think of the ruminating formula “communism = Soviet power and electrification” (LW 31: 513). (Cf. Balibar 2013: 136) Although Lenin remains entirely committed to realism in his epistemological conception, i.e. the recognition of the independent existence of the external world as the primary reference for discursive knowledge, he also provides a politically dominated, prescriptive description of the natural sciences, according to which it is the task of theoretical sciences under socialism to place the laws for the manipulation of natural objects entirely at the service of society (in contrast to a purely descriptive account, according to which the laws of physics state how objects behave. See Schlaudt 2014a: 123). In the course of affirming the unfortunate formula “productive force = progress”, the Marxist-Leninist discourse of progress also has no problems with the fact that the technical (especially the machine discourses of mechanics) or the syntax of technical objects proves to be rational precisely when the forces of the technical show themselves as ordered and organizing relations. Bahr writes: “The technical is a guardian of order par excellence. Its internal discourse shows it not as a productive force, but as a system of order.” (Bahr 1983: 186) This applies equally to theoretical mechanics and to the machine discursivity of cybernetics. And last but not least, this also applies to economics and the neologism “political economy”, a term that in the 19th century refers precisely to the fact that efficient economic activity is immanent to a system of order that inheres the measure of the political. (Cf. Vogl 2015: 40)

In the 19th century, the emancipation of the natural sciences required from the tyranny of finitude required the reorganization of physics, which should now be able to take the place of metaphysics by appropriating the concepts of force and energy in order to integrate them into an already coded rational network of knowledge. Only in this way was it possible to explicitly write down an axiom that Michel Serres described as the first and most important axiom of the 19th century: “The real is rational, the rational is real” (Serres 1993: 77). And this corresponds to the axiom in Western philosophy: “The real is communicable, the communicable is real” (cf. Laruelle 2010c: 22). Laruelle’s statement refers to the classical philosophical model of medialized being, which is still prevalent from antiquity to the present day, and for which the god Hermes stands, who transports things from and through foreign places. With its hermeneutic mega-machine and its fog of semantic transfers, Western philosophy has placed the concepts of rationality and truth in relation to that which is possibly hidden, but must and can be uncovered.⁹⁷

It can be assumed that modern natural science always confronts its own object – nature – in the form of mathematics, discourses and material apparatuses/machines. (Cf. Schlaudt 2014a: 68) It is therefore only possible to speak of technology/engineering when the material-spiritual production itself has already matured into technology. Following on from this problematic, should we now define technique and technology less as phenomena constituted by the economy of capital, but rather as phenomena of industrial societies, as Oliver Schlaudt does, so that we should speak of technology as a specific discourse of the mastery of nature under capitalist conditions? (Schlaudt 2014b: 160) Or should we insist on the position that says that the logical rationality of monetary capital or capital-power is already inscribed in the

concept of the techno-logical? (Cf. Bahr 1970: 34)

For Simondon or Laruelle, capital-power is linked both to the aspect of the individuation of thought and to technologies, insofar as the latter enable an operational circulation of knowledge and at the same time structure a specific axiomatics of signification. And the question always arises as to how such a system of signification can make the production/circulation of capital qua technical objects effective. Simondon provides a schema that aims to comprehensively explain the relationship between capital and technology in order to ultimately de- mystify the power of capital. (Cf. Simondon 2012) For Laruelle, the “sense” of capital-power is already linked to a certain mode of thinking, while for Simondon such a “sense” can be mobilized through technical invention, which is itself a mode of thinking. Simondon locates the origin of technology, at least for the Western Occident, in the encounter between technology (the practical use of various devices/machines) and the logos of the theoretical sciences. In contrast to technology, which despite its close relationship to the human remains an autonomous and automatic mode of being and is thus to be understood independently of the human, Simondon understands technology or mechanics as a thoroughly human construction. (Ibid.) Technology inaugurates a generative code that structures the correlation between man and nature qua the “laws” of man and which is thus to be understood as the direct consequence of the development of human language and the theoretical sciences. Simondon further claims that the “laws” of man have so far served exclusively to domesticate and regulate nature, insofar as they could be used to describe and anticipate natural phenomena and advance the exploitation of labor; strategies that only seem possible if the teleology of mechanical, linear progress can be made permanent. This way of thinking has ultimately produced a system that progressively integrates every discontinuum into the continuum of progress, thus preventing the *kairos* – the aleatoric power of nature – in order to instead incessantly force the anticipation and effectuation of the relations between capital and technology and at the same time reduce the freedom of technology until a new technical invention creates a new code. With the help of mathematics and the theoretical sciences, the human species has created the autonomous logos of technology, i.e. a chain of theoretical operations that allow a technical system to function effectively. And this implies that the transcendental *nomos* (law) replaces the ecological code of correlation (between nature and logos) with the economic code (logos and economy). For Simondon, the birth of technology definitely marks the shift from ecological to economic reality (including the cultural superstructure that constitutes the social). It is necessary to analyse the bond that connects the political and social with the economic relations in order to grasp the (technological) evolution of money and capital, which qua capitalization also sets the stage for the quantification of human relations. (Ibid.)

The relationship of the human species to the world is fundamentally artificial and and technical, it contains a certain configuration of economic and additionally political, architectural, social and erotic techniques, of agricultural, informational and war techniques, etc. (ibid.). Because there are many individual techniques and each technique configures a micro-world and at the same time materializes a certain social form of life, there is no essence of the human to report, rather the techniques remain in a certain way (transindividuation with Simondon) autonomous from the human being. As Simondon has already indicated, it is not primarily technology, but technology (in its relationship to capital) that is adequate to capital without fully corresponding with it (adequate-without-correspondence). And technology is by

no means to be understood as the perfection of technique; rather, by being determined in the last instance by capital, it also forces the expropriation of man, at least of various old techniques. Technology inheres in the logical systematization of techniques that are efficient for capital and thus operates the levelling of all worlds of alterity. Technology inaugurates an auto-referential discourse on its object, the techniques. It is precisely in this sense that capital is *sui generis* technological, insofar as it forces the profitable organization and operation of the most productive techniques. And the determination of technology by capital in the final instance means that it is used to increase productivity, to re-regulate class struggles through shock-like bursts of innovation and as a technology of power. It was precisely the combination of new information technologies with the construction of new derivative financial instruments for the procurement of liquidity that set in motion an economic development in the USA after 2000 that gave the country a competitive advantage in the accumulation and allocation of capital over other frontline capitalist countries. Detlef Hartmann quotes former Fed President Alan Greenspan: "The process of real capital allocation was supported throughout the economy by a significant unbundling of risk in capital markets, made possible by the development of innovative financial products, many of which owe their usefulness to advances in the IT sector." (Hartmann 2015: 69)

It is true that neither the technique nor the technology from the discursivity of monetary capital, and it is also true that technical objects or machines as means are to a certain extent disposable, but if one speaks of the neutrality of techniques or machines, then this can only refer to a specific indeterminacy. One can now ask in which functional mode the techniques function in the context of the material-discursive practices of capital. (Cf. Bahr 1983: 14) In this view, machines/techniques inherit certain purposes. One can say quite provocatively: technical facts are petrified ends, and as means the techniques are materialized ends of capital (in the last instance). (Cf. Schlaudt 2014a: 41) However, it remains imperative not to assume a primary rationality of technology that is based on the pure means-purpose relation, because the purposes must at least also be questioned with regard to the coherence and effectiveness of the means and their productions. The technologies and the sciences each already contain very specific means, which in turn cannot be separated from very specific ends; this complex is ultimately determined by capital (as a social relationship) and its imperatives (including increasing productivity), so that certain technologies are adequate to it (without a direct correspondence between technology and capital being necessary, and this constellation of adequacy-without-correspondence requires the axiom of non-causality or unilateral duality).

The problem of the disposable applicability of technology within the framework of a socio-economic-historical practice, in which Schlaudt assumes the positive area of application of theoretical pragmatism in comparison to realism (ibid.: 139), is thus by no means solved. At the very least, however, two seemingly diametrically opposed positions can be avoided, whereby the first position understands technology and machines from the purely instrumental perspective of a neutral object of use that can be appropriated by capital – or alternatively by the proletariat – while the second position analyzes machines exclusively as real subsumed, form-determined capital. Bahr, on the other hand, speaks of the differential neutrality or non-neutral indifference of machines in his essay *Über den Umgang mit Maschinen*. (Bahr 1983: 14) If one assumes that the techniques and/or machines today mostly contain objectified relations of the rationality of capital (specific utility structure of the machinery), then their

neutrality, in which differential a-significant semiotics and material discourses (of capital) are already inscribed – and this must be insisted on – cannot be separated from the determinacy of capital (in the final instance).

Why is this so? From the point of view of the (Marxist) economist, one prefers to see the world purely from the point of view of capital. From the technologist's point of view, one prefers to understand the economy purely as an extension of machinery. Marx apparently had an elegant dialectical solution to this dilemma: the current machines would always replace an earlier and more primitive form of division of labor and thus improve the accumulation of capital. In this simple way, the machines always tell us something about capital. Philip Mirowski (Mirowski 1986) has shown how Marx extracted certain parts from the hegemonic scientific models of his time in order to explain the emergence of value, namely parts from thermodynamics and Newton's physics. Marx thus brought a double measurement of value into play; the first is based on the hours worked per day, the second on the average socially necessary, socially abstract labor. Marx thus had a thermodynamic (Carnot) and a gravitational measurement (Newton), a metric and a topological one, one based on horsepower and one based on a field of forces, a more substantial and a more relational measurement.⁹⁸ But this paralleling of the two physics and the associated measurements, which are ultimately "synthesized" via money and capital, remains quite insufficient in its specific reduction. Abstractness, repetition, repeatability, broadest applicability and plural procedures are characteristics of a technique or technology that from the outset stand in relation to monetary capitalization and the corresponding productivity and growth imperatives of capital, which in turn process via the mechanisms of relative surplus value production. In his early phase of writing, Bahr already noted that individual capital is permanently called upon to innovate and invest technologically through the constraints imposed by competition and its corrective mechanisms, which are set by relative surplus value production in the context of the laws of total capital. As actively price-setting and cost-reducing organizations, companies are keen to invent technologies that imply relatively low production costs but require a higher investment in fixed capital per unit. This implies, among other things, the need to integrate a broadly diversified process plurality of machines into production, i.e. to establish the interchangeability of machine parts and technological design services, whereby it should be noted that the same technical processes can be used quite differently by the companies in order to generate differential monetary profits. (Bahr 1970: 79)¹⁰⁰ In this respect, the use of new technologies is also stochastic and not exclusively deterministic. Today, these processes can be seen in the technological and economic developments in the financial industry. The use of information technologies is leading to a blurring of the boundaries between commerce and banking and thus to a broad spectrum of specialized financial service providers and their products, which are tailored to customers in a variety of ways. The reduction of costs through these technologies enormously expands the scale for the provision of corporate and consumer loans. New credit calculation and securitization technologies are providing households and companies with access to the national and international credit markets faster than ever before. (Cf. Hartmann 2015: 79) However, there is also the suspicion that the specific constellation – the uni-lateral relationship between capital and technology/engineering – cannot be separated from the non-simultaneous historical phylogenesis of the machines, i.e. the historical dating of the machines is not to be understood as syn-chronistic, but rather as heterochronistic. (Cf.

Guattari 2014: 56) Thus, even the neoliberal financial capital regime is still characterized by remarkably uneven patterns of the use of techniques and even of scientific-technological development and research: On the one hand, innovations in the techniques of surveillance and digital mapping, transport, logistics and communication, data collection and data calculation have accelerated rapidly.¹⁰¹ On the other hand, there are techniques that are used in commodity production, agriculture and industry (genetic engineering, etc.) and yet, over several periods, have hardly increased the growth of productivity that has characterized the long cycles in capitalist economic history so far. This is important to note, as (material) productivity is still an important measure of economic growth. Ultimately, however, it is the monetary variables that are decisive.¹⁰² With regard to the last techniques mentioned here, one could almost speak of a technological exhaustion of capital, the exhaustion of relations that have so far made the great leaps in capitalism possible, especially with regard to the socio-ecological surplus. Finally, from a temporal point of view, it should be noted that the dominant temporality of capital does not necessarily coincide with that of the highest technological development; revolutionary policies can even pass through seemingly archaic periods of time.

The non-simultaneous development remains virulent, especially when the anthropologically motivated definition of machines as instruments, i.e. the teleological and goal-oriented use of the means of production for fixed human purposes, becomes completely questionable. Ultimately, a discourse on technology that presents machines as a projection or reflection of the human body or human cognition can now be definitively considered a thing of the past.¹⁰³ Because, on the other hand, the socio-economic logic of capital is not directly reflected in the machine, and even not in techno-logic, the floating nature of a discourse arises that, on the one hand, suspects that capital is somehow present in the machine as a social and at the same time logical relationship, but which, on the other hand, continues to assume the transparent neutrality of the machines or their mere instrumentality. Against this diffuse background, even those Marxists for whom politics has an ambivalent character – virtual and actual at the same time – argue that ultimately at least the technologies and machines should be freed from such virulence. Thus, the Promethean myth continues to proliferate underground when left-wing accelerationists currently adopt supposedly neutral techniques and technologies under the rubric of “post-capitalist increase in complexity and normativity” by wanting to put them to socially emancipatory use. At the same time, the accelerationists turn the imperative “forward” into a teleological “upwards”. Peter Sloterdijk has pointed out that a theory that floats on such a current of progressivism (which the accelerationists, however, offer as a rather home-baked theoretical achievement) has to struggle with a paradox: The history of technological development simply cannot be written down as that of (linear) progress, which necessarily also pushes towards emancipation, whatever that is. (Sloterdijk 2009: 588)

From the outset, a technocratic position, often favored in Marxism, cannot be affirmed, according to which the per se neutral machinery is to be confronted with its function in the valorization process of capital, whereby one must assume the superfetation of the valorization-related form determinations of capital, i.e. that the valorization of capital only superforms the structure of the means of production (and ultimately leaves the content untouched). Thus, the logic of the monetary valorization of capital would not necessarily be constitutive for the design of machinized production processes and therefore the

corresponding machine systems could also be freed from monetary valorization or capitalization without any structural change and transformed into a “post-industrial capitalism”. This position adopts certain theoretical aspects of the Leninist policy of industrialization in the Soviet Union largely unquestioned. The position of critical theory, which is diametrically opposed to these discourses and against which the attacks of accelerationism are consequently mainly directed, should not be concealed here. In the context of critical theory, the complex of theoretical science, technology and engineering is often understood as being completely absorbed by capital, in that it itself takes on the real form of capital. Thus Stefan Breuer, following Adorno's Critical Theory, has remarked on the relationship between ecology and technology that today both areas are to be understood as moments of a totality, whereby this totality has progressed from the abstraction of the real to the realization of the abstract since the emergence of the transclassical machine and has thus finally closed the gap between capital and technology.¹⁰⁴ (Breuer 1992: 98ff.).

With all these still very vague formulations, it can finally be implied that the Kantian heuristic of the as-if would have to be brought into play again at this point if one wants to speak of machines as the materialization of capital, i.e. machines would be conceptualized as if they were the direct causal expression of the economy. For the producer, in turn, this means that he would have to judge his work as if he actually created the usefulness of his products himself, while in reality he only executes the functions of capital. (Cf. Bahr 1970: 66) Even the ontological discourse on technology, the theoretical sciences and technology, insofar as they believe that they do not have to take into account the cognitive interests of capital, are not spared from the as-if determinations, insofar as here the evaluation of technology is carried out as if it were not subject to any causality or determination by capital. However, the introduction of the heuristic of “as if” into the analysis of the technical/technological alone is unlikely to make much progress, insofar as determination (validity) and causality (genesis) are not consistently related to each other in order to arrive at truly new hypotheses, deductions, conclusions and tests in the technology debate. (Cf. Schlaudt 2014a: 281) It can also be assumed that the technical objects/technology are constituted by specific material-discursive practices, whereby these practices are always also socio-economic practices, i.e. that they are ultimately determined by monetary capital in the historically heterogeneous formation of “capitalism”. The material-discursive practices are condensed in apparatuses in which the coupling of labor and technology leads to overwhelming inhuman constellations, such as climate science, which consists of a matrix of satellites, computers, terrestrial weather stations, forms of international cooperation within the sciences, agreed standards, etc. In the postscript on control societies, Deleuze notes that the manifold resonances between socio-economic structures and (technological) machines, namely in the interstice between technological acceleration and socio-economic transformation, have become so intense today that any attempt to conceptually establish either a direct unity or a crude opposition of technology and economy is in massive crisis. Deleuze attempts to describe the relationship between the economy (its social relations) and the machinic complexes with the metaphor of “dramatization”. The question that immediately arises here is what can be done with this metaphor at all. Perhaps dramatization can be thought of in terms of an asymmetrical determination of technology by the economy (and not the other way around), possibly in the sense of a *laruelle* determination in the final instance and in contrast to a symmetrical explanation of the two areas by a third party.

With regard to the latter position, reference should be made to Bruno Latour, who chooses a symmetrical approach with his theory of the co-production of nature, technology and society, whereby, following Michel Serres, he initially speaks in general terms of a “rapid vortex” of the mutual constitution of subject and object. (Cf. Latour 1990: 163) (Subject and object are to be thought of as constituted by discursive-material practices). When Latour replaces the concept of technique (noun) with the verb “to technical”, noting that “techniques as such do not exist, that there is nothing that can be philosophically or sociologically defined as an object, an artifact or a piece of technology” (Latour 2002: 233), he first attempts to grasp techniques as media and mediators. The term “mediator” refers to the fact that socio-economic relations cannot be inscribed one-to-one in the technology, as if the technology were a blank white sheet that would receive its one-to-one characteristic description through the labeling. Rather, Latour sees non-human actors at work in technology as mediators “who are gifted with the ability to translate, redefine, unfold anew or betray what they transmit”. (Latour 2008: 109) If one places the concept of the medium in the foreground, then machines are to be conceived as quasi-objects, as Latour calls them, disposable means that multiply the “circumstances” precisely when their multiplicity is interpreted as complex messages. The things defined as quasi-objects may have the property of being the medium of potential events, which do not necessarily depend on the human actors, but certainly influence their actions, so that the dichotomy between subject and object ultimately dissolves. In this way, the technical objects, which Latour by no means understands as passive things, are ascribed a potential for action to be determined in each case, whereby a society requires subjects, objects and quasi-objects in order to achieve a certain stability. (ibid.: 141). With this symmetrical position, Latour wants to overcome the dualisms of nature and society, subject and object, technology and economy, etc., by opening up nature and society in their common historical dimension. And the concept of the collective also serves this purpose, whereby the collective actually only exists in the plural, namely in the form of unpredictable dynamics and procedures that serve to gather technological knowledge between people and quasi-objects. In this context, the verb “to assemble” refers not only to the practical activity (technology as the practical use of devices), but above all to the reinterpretation of the world (technology). In the scientific context, every fact is created as a theoretical artifact in the laboratory and at the same time remains integrated into the context in which it was discovered. Latour is less concerned here with processes in the social deterministic sense (technology as coagulated social action or as condensed power relations), but rather sees technology itself as the engine in which social constellations are given a certain stability through the ordering of actors and observers. Technical objects are therefore always to be conjugated with subjects and collectives. (ibid.: 89) However, Latour must seriously question whether the symmetry he claims exists between technical objects and social actors at all. Technical objects or things cannot easily make claims to validity vis-à-vis human actors and social relations, and must therefore also be distinguished from the actors and the material-discursive practices. Research objects and research resources do not belong to the same category of things either. Research resources are appropriated in nature, research objects are not. (Schlaudt 2014a: 89) Schlaudt sees Latour’s ANT theory as an attempt to reintroduce the positions of epistemological realism via the back door, insofar as Latour forgets that technical artefacts only refer to facts on the basis of historically specific, material-discursive practices.¹⁰⁵ It should be clear that in their function of indicating economic relations,

machines are by no means to be understood as a direct expression of ecology, although at the same time we must also think beyond any purely instruction-oriented concept of machines as neutral means of production. When Marx writes that machinery is not identical with its existence as capital (see Terranova 2015: 130), he himself seems to attribute a certain neutrality to machinery in relation to capital, which is also implied when he speaks of the use of machinery by capital in order to demand its world-historical potentiality (the proletariat is then assigned the world-historical task of separating the capitalists from the productive forces). In this way, however, the relationship between economy and machinery would be simplified again in favor of the autonomy of the latter.

It can first be noted that the nature of technology cannot be fitted into a linear evolutionist scheme (increase in potentialities), nor into a digital-dialectical scheme (explosion of the contradictions of capital in the context of the unleashing of the productive forces), nor into one of the real subsumption of technology under capital. Rather, the technical objects or machines at least indicate a certain art of disguise when they go beyond the blunt end-means relationship, although the machines are overdetermined by the technologies and theoretical sciences and are ultimately determined by capital. The technical machines are therefore not completely open, rather a certain technological structuring is inscribed in them by capital as an overall complexion in the final instance. However, because the machines are not purely passive objects, it is a matter of “inscribing” the monetary capital relationship in relations that insist as specific concatenations of human-machine and machine-machine constellations. Thus the inscription – folding in or incision of capital – is not aimed from the outset at the machine as a thing, but rather indicates monetary methods, measurements, algorithms, diagrams and material-discursive practices, including their objectification in apparatuses – strategies, methods and apparatuses that individual capitals must necessarily use due to the immanent “laws” of total capital to increase relative surplus value in order to be able to survive in differential capital accumulation (competition) at all. This at least indicates that a differentiated concept of technique and technology needs to be developed, also with regard to the complex composition and concatenation of the machinic and the technological itself. From the outset, the machine only exists in structures.

And furthermore, the differential or non-indifferent neutrality or the non-neutral indifference of machines, of which Hans-Dieter Bahr once spoke, insists. (Bahr 1983:14) To a certain extent, Bernhard Stiegler also refers to this, describing technology as a *pharmakon* (poison and cure at the same time), which is characterized by poisoning (repressive) and simultaneously healing (opening up possibilities) moments. (Stiegler 2012) For Stiegler, such a qualification refers to technical categories that are per se open to the political, insofar as the transindividuation of technical arrangements and objects (Simondon) has always also eluded the economic. With the concept of transindividuation, as used by Simondon, in view of our post-industrial situation, we must first speak of technical objects whose respective elements always form recursions and maintain internal resonances with each other, while the technical objects are simultaneously in external resonances with other technical objects in order to possibly be able to play out their own technicality as open machines in the mechanical ensembles. (Simondon 2012) And when Hans-Joachim Lenger states in his essay, according to Marx, that media technologies write a text other than that of the capital, then the interactions between economy, technology and technoscience (technology) must be examined again. It can be assumed that these relations can be captured with the concept of

superposition, insofar as the capital-economy continues to determine in the last instance and infects the techniques/machines per se by means of the structures of the techno-logo.¹⁰⁶ In this respect, however, capital cannot do without the use of philosophies to which Laruelle ascribes an onto-techno-logical disposition.

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